

Time_Frequency_Compare

Where To Find This Example

AWR Version 14

[Download Project](#)

[Understanding AWR .emz Files](#)

AWR Version 13

This example was renamed since the previous version. Please see [Previous Example Page](#) for the version 13 page.

Design Notes

Time and Frequency Domain Comparison

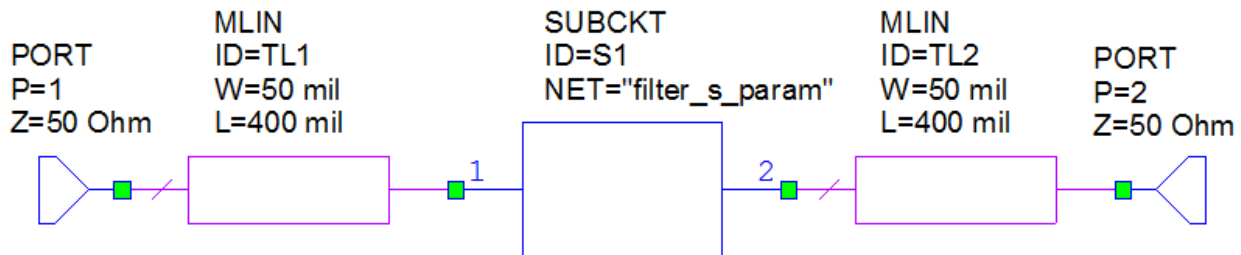
This project demonstrates the ability to check how passive frequency domain models in a design will behave in the time domain.

Overview

Before simulating in the time domain it is often useful to check and see how the passive frequency domain models in a design will behave in the time domain. In AWRDE this comparison is very simple and involves duplicating the small signal frequency domain test bench and then using a special simulation option. **Note that this technique only works with passive frequency domain models and that the simulations must use the APLAC simulator.** The Linear > PASSIVE measurement can be used to confirm the passivity of the circuit. To compare active frequency domain models (e.g. s-parameters of a transistor) it is necessary to use time domain simulation and nonlinear measurements. Please contact AWR Support for additional detail.

Filter Schematic

Contains a passive filter design with MLIN models and an s-parameter file.

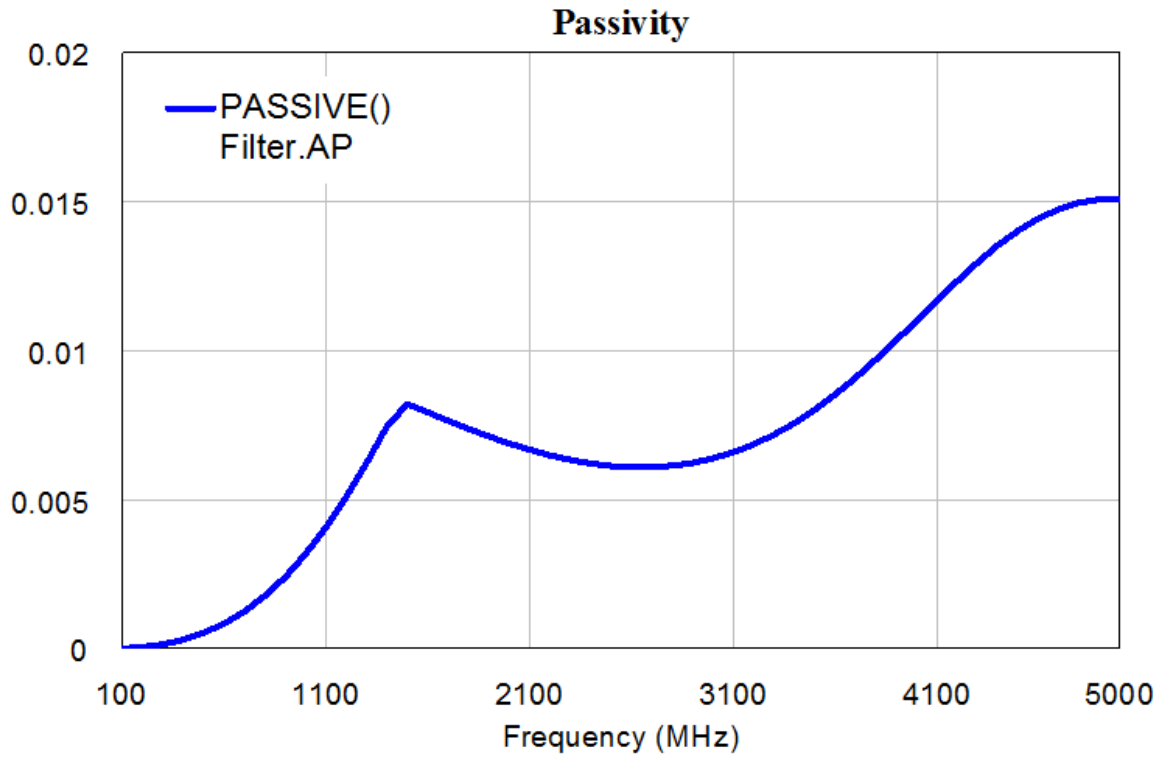


Filter_TD Schematic

Contains the same passive filter as the Filter Schematic but uses the Free Text=NETLIST_TD APLAC Simulation Option. The Free Text option is set by right clicking on the Filter_TD Schematic > Options > APLAC Sim. Click the Show Secondary button and scroll down to the Miscellaneous Options Category. The NETLIST_TD option causes models to be mapped to the time domain (even though the simulation is performed in the frequency domain).

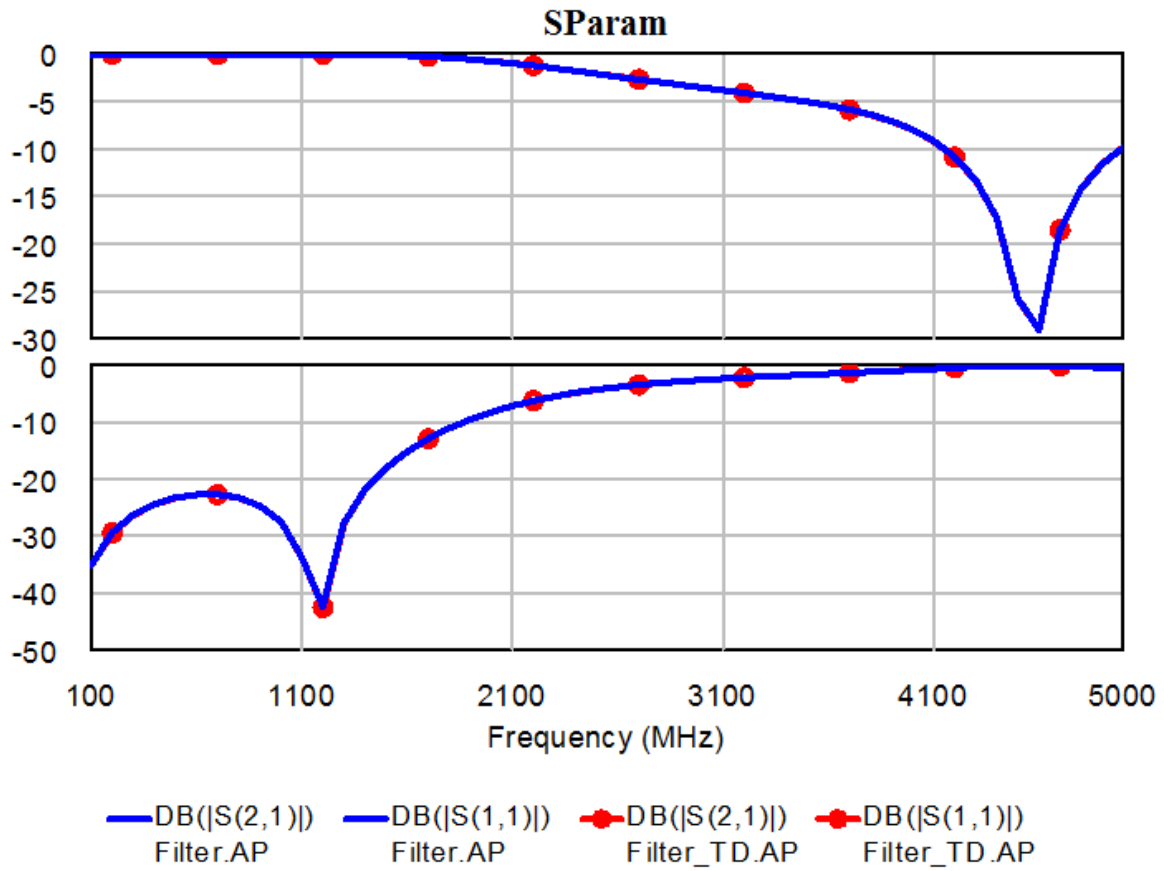
Passivity Graph

Uses the PASSIVE Measurement to confirm that the Filter Schematic is passive.



SParam Graph

Compares $S(2,1)$ and $S(1,1)$ from the Filter Schematic (blue) and the time domain representation of the Filter Schematic (red).



SModel Graph

Uses the SModel Measurement to compare the Filter schematic to the time domain representation of the Filter Schematic. The -100 dB match is an almost perfect match. Read the SModel help doc for more details.

SModel

